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Depiction of Lying Down and Standing up Sequences in Multiparous Sows

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Summary and Implications

The objective of this study was to create a pictorial lying down-standing up sequence depiction in multiparous sows. Eighty-five multiparous sows were moved from their home stall to a testing stall where they were video recorded for one lying down-standing up event on 30, 60 and 90 days of gestation. The digital video camera was positioned on the adjacent stall so the sows' profile was visible while recording. Observations ceased when the sow successfully lied down or if 2.5 hours elapsed since recording began. Normal standing and lying pictorial depictions were created, and deviations from the normal lying down and standing up sequences were also pictorially depicted. This is the first published pictorial depictions on mulitparous sows on the standing-lying-standing sequence.

Introduction

The pig lying down and standing up sequence was first described by Baxter and Schwaller (1983). These authors suggested that locomotory problems would cause few behavioral alterations during this sequence. Since the early 1980's the U.S. swine industry has experienced rapid genetic improvements which may have influenced how pigs position their bodies while transitioning from standing to lying or vice versa. To our knowledge, there are no other studies that describe and provide a pictorial depiction of the rising and lying down postural sequences in multiparous sows. Therefore, the objective of this study was to create a pictorial lying down-standing up sequence depiction in multiparous sows.

Materials and Methods

The protocol for this work was approved by the ISU-IACUC committee. This work was conducted from August 2015 to June 2016.

Animals: Eighty-five multiparous crossbred sows (parities 1 to 4), were moved from their home stall to a testing stall on 30, 60 and 90 days of gestation.

Behavioral equipment: A digital video camera (GoPro Hero, GoPro Inc., San Mateo, CA, USA) was positioned on the adjacent stall by a camera clamp, approximately 51 cm from the floor.

Digital video recording: The video provided a continuous sow side profile. Observations ceased when the sow successfully laid down (defined as the sow lying in either sternal or lateral recumbency not supported by any of her legs) and stood up or if 2.5 hours elapsed.

Sample Points: Video was continuously viewed, and sow postures and movements that occurred during the lying-standing sequence were identified. A behavioral sampling methodology focused on attempted and a successful lying and standing sequence was used. **Lying;** 1) the sow drops to a knee, 2) she rotates her shoulder and head to rest them flat on the ground and 3) lowers her hindquarters to the ground. **Standing;** 1) the sow extends her front feet from under her body, 2) she rises to a sitting position bearing weight on her front feet with hindquarters resting on the ground and 3) raises her hindquarters off the ground to bear weight on all four feet.

Creation of pictorial lying down-standing up sequence depiction: Still frames were cut from the video using AVcutty v3 (Andreas von Damaros, Krefeld, Germany). The still images were then traced by hand on carbon paper and scanned in sequence to achieve the pictorial lying down-standing up sequence depictions.

Results and Discussion

Depictions of a normal lying sequence can be visualized in Figure 1A. The most common deviations were; sows did not lay down in the allocated observation time (i.e. 2.5 hours), sows did not rotate their shoulder, or sows finished the lying down sequence in the sitting position (Figures 1B-E). Depictions of a normal standing sequence can be visualized in Figure 2A. The most common deviations for the standing sequence was the sow skipped the sitting posture and simply rose straight up from the lying position (Figures 2B-E).

Acknowledgements

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Figure 1. Different postural combinations observed during the lying down sequence. A) normal lying down sequence, B to E represent deviations from the normal lying down sequence

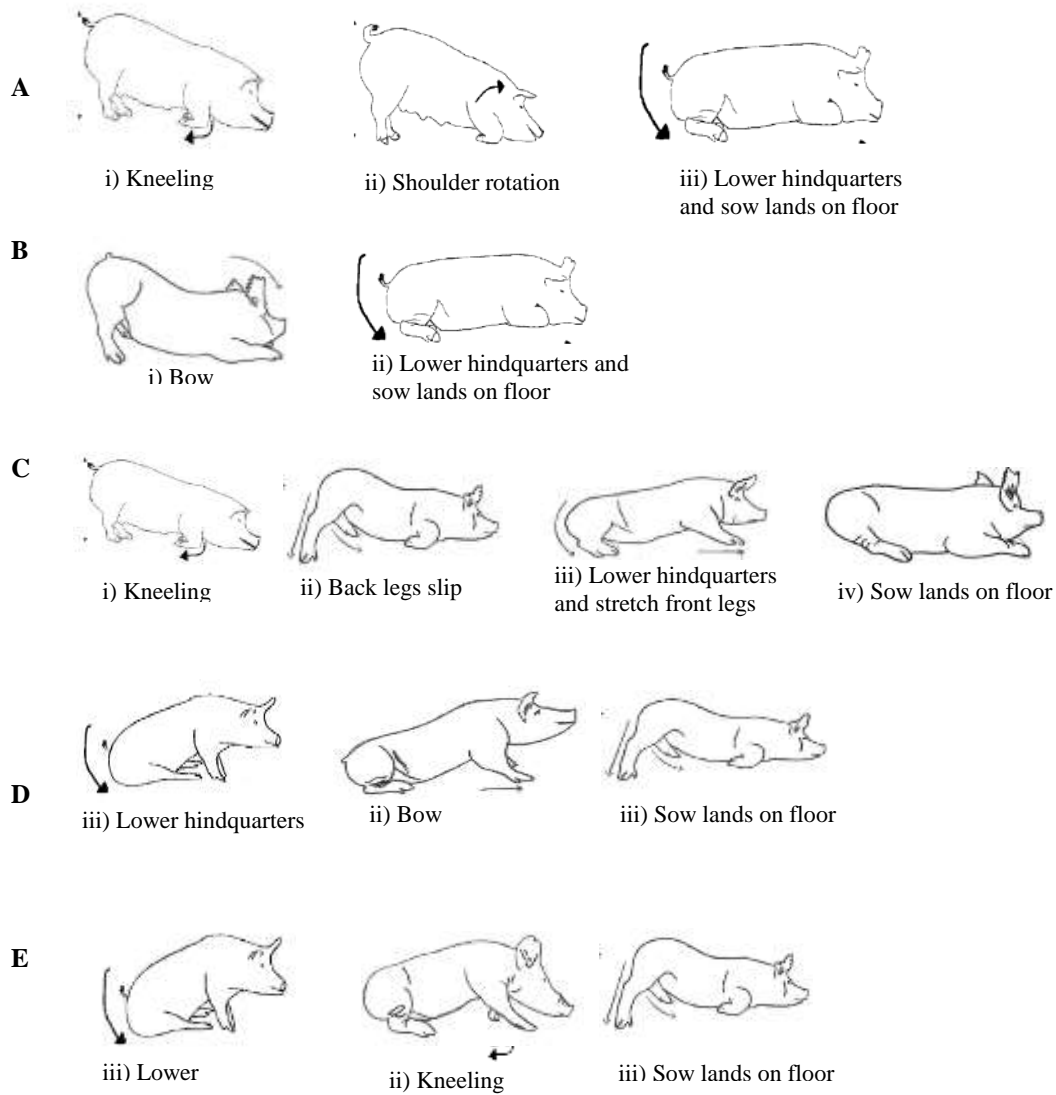


Figure 2. Different postural changes documented during the standing up sequence. A) normal standing sequence, B to D represent deviations from the normal sequence.

A



i) Legs folded beneath body

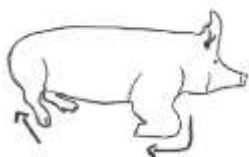


ii) Sow rises to a sitting position

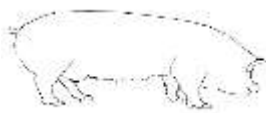


iii) Lift hindquarters and sow achieves a full standing

B



i) Sow 'kneels' and starts to lift hindquarters



ii) Sow achieves a full standing position

C



i) Sow rises to a sitting position



ii) Lift hindquarters and sow achieves a full standing position

D



i) Lift hindquarters



ii) Sow achieves a full standing position